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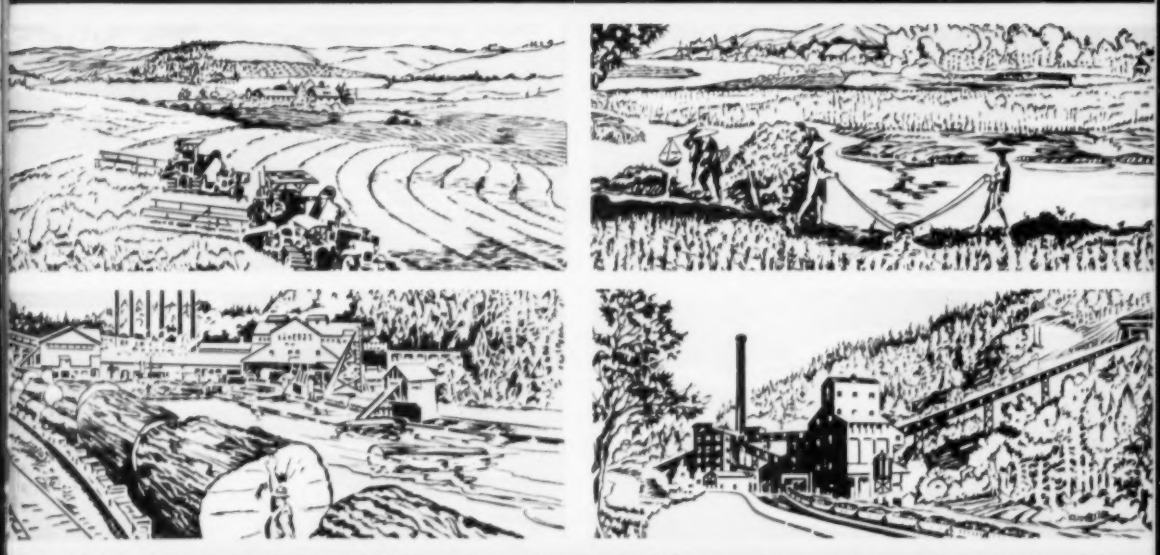

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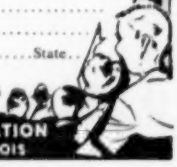

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VOLUME LIV DECEMBER 1955 NUMBER 9

THE OLIVE INDUSTRY OF CALIFORNIA

PAUL F. GRIFFIN
Stanford University

Olives, one of the least publicized tree crops of southwestern United States, make an important contribution to California's[1] agriculture. In 1950, they ranked ninth in value, approximately $10,000,000, and tenth in acreage among tree crops of that state.[2] United States production, averaging approximately 47,000 tons annually, accounts for only one per cent of world total; but California's industry includes 3,000 growers, 34 canner-processors, and 10,000 laborers, employed in harvesting and processing the crop (Fig. 1).

HISTORICAL BACKGROUND

The olive is thought by some to have originated in Syria, and from there its culture was carried around the shores of the Mediterranean Sea. In ancient Greek mythology, it was regarded as the special gift of the Goddess Athena, and in ancient Rome it was highly regarded, both symbolically and literally. During the time of the Roman Empire, Spain became the leading producer of olive oil and the Spaniards grew skilled in cultivating and processing the olive.

From Spain, missionaries took seeds to northwestern Mexico, middle Chile, and coastal Peru, shortly after the Spanish conquest of those lands. In 1697, the Jesuits planted olives at Loreto in Baja California.[3] After 1768, the Franciscans began founding a chain of missions in Alta California, and in the mission grounds they planted grains, vegetables, and olives and other fruits.

[1] Arizona is the only other producing American State and its production is usually less than 600 tons annually.

[2] H. T. Hartmann, "Olive Production in California." *California Experiment Station Extension Service Manual No. 7*, 1953, p. 1.

[3] These seeds were the source of the present "Mission" strain of *olea europaea*, and constitute half the bearing acreage of California olives. See B. M. Lelong, "The Mission Olive." California State Board of Horticulture, *Annual Report*, 1890, p. 185.

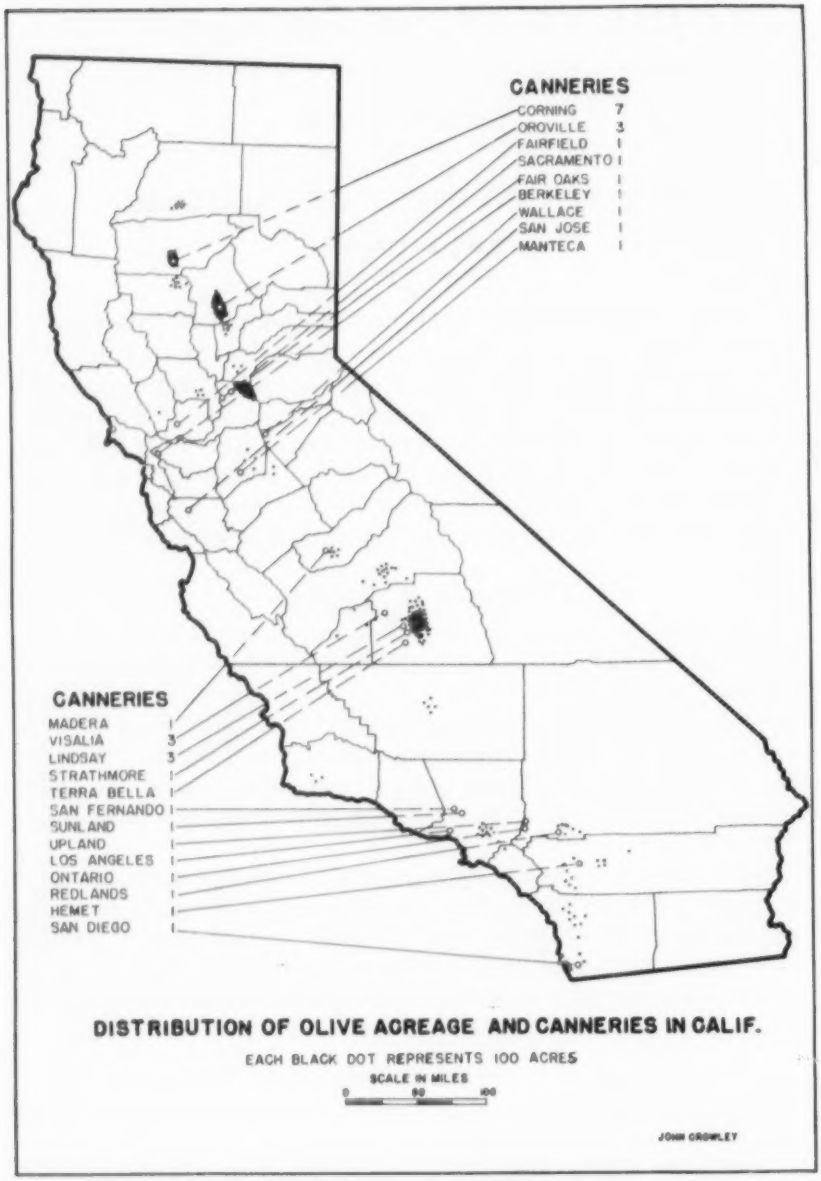

Fig. 1. The high concentration of olive culture in the Sacramento and San Joaquin valleys results from the warm dry climate of the region.

By the middle of the nineteenth century (1855), there were 503 trees in California and these were distributed rather widely. Twenty years later, the number of fruit-bearing olive trees was 11,561,[4] and soon an extensive program of experimentation was undertaken. By 1910, the number of olive trees had increased to 958,000. Much of the experimenting had as its purpose the improvement of the methods of expressing the oil from the olive; later, it was designed to improve methods of pickling, grading, and canning. This eventually so enhanced profits in the industry that planting increased notably. During the past five years, it has increased so rapidly that the non-bearing acreage is currently more than 5,000 acres—as compared with a mere 620 acres in 1940.[5]

Essential Environmental Conditions

The olive tree is quite sensitive and requires four climatic and edaphic conditions for its successful cultivation: (a) warm temperatures, (b) absence of severe frost, (c) low humidity, and (d) favorable winds. The olive is commercially limited to areas with a long hot summer; that is, with half of the year having temperatures averaging above 68° and with three or more months averaging well above 80°F.

The *acebuche* or wild olive can survive temperatures as low as 10° to 14°F., whereas the more domesticated types can endure no lower than 18° or 20°. The tree resists prolonged moderately cold temperatures more easily than short severe periods followed by rapid thaws.[6]

Excessive humidity is disastrous to the olive tree. Heavy rains impede flowering; continued dampness initiates disease. The tree survives drought, long hot periods and dry soil conditions because it has small, leathery leaves with water-retaining cuticles on the upper surface and peltate hair masses protecting the numerous depressed small openings on the under side known as stomata. It is incorrectly but widely believed that the olive tree does not use much water. This misconception may be attributed to the fact that it does well in dry soil conditions, to which centuries of cultivation

[4] D. J. Thomas, *An Essay on Agricultural Statistics of the State*. California State Agricultural Society, 1856, p. 323.

[5] H. T. Hartmann, *op. cit.*, p. 3.

[6] William E. Bull, "The Olive Industry in Spain." *Economic Geography*, Vol. 12 (April, 1936). p. 139.

around the Mediterranean Sea testifies. Olives were first raised without irrigation in California as they had been in the ancient European world. The planters were unaware that the Mediterranean dry-planting was a necessity rather than a choice. Olives had been grown in regions of inadequate rainfall and lack of irrigation because these were one of the crops that produced fairly well without much moisture. Irrigation experiments with olive trees show that they use as much water as other trees, possibly more.

Fig. 2. Irrigation is essential to prevent the fruit's shrivelling and to obtain profitable yields. Note the vigorous, well-developed bearing surface and the low branches which facilitate harvesting—a combination of proper irrigation and pruning.

Growers find that when irrigation is possible the trees are kept vigorous and productive by periodic application of water. (Fig. 2). Ordinarily drought does not permanently injure the trees, altho excessive heat and lack of rainfall reduces production.[7]

California's climatic conditions contain the natural features conducive to successful olive growth: abundant sunshine, water at

[7] See A. H. Hendrickson and F. J. Veihmeyer, "Irrigation Experiments with Olives." Bulletin No. 715, California Agricultural Experiment Station, Dec., 1949, p. 3.

the right time, and a long dry climate with relatively high temperatures which ripen the fruit. Summer rains, fog, and extreme cold destroy the fruit. Consequently, California olives grow in the warm dry interior valleys, particularly those of San Joaquin and Sacramento.

PROPAGATION AND PLANTING

The olive first came to California as a few handfuls of seeds. Today seed propagation is no longer regarded as the most suitable

FIG. 3. The maturing of the olive fruit exhibits a cyclic pattern, the first state being one of very rapid growth followed by a second in August and September when increase in size is slower. Here is a heavily laden tree shortly after the first development period. The olives are still green and are not yet properly sized.

method of production, since it is slower, more complex, and less versatile than propagation by cuttings. In the seed method the pulp has to be removed by allowing the fruit to rot, or by an alkali softening process. Propagation from cuttings is the easiest and most widely used method: five to six year-old suckers cultivated in nurseries to a height of eight or ten feet, are transplanted to the field where they root readily.

Planting takes place during December, January, or February.

Young stock is set out in groves, planted in squares, 35′ × 35′. Close planting results in declining yields soon after the trees come into full bearing, because of root competition and eventually excessive shading. The trees are pruned in late winter; the bloom appears in April and May, and the fruit appears a month later (Fig. 3), changing from red to purple in color as it ripens. The color of the olive as it comes from the tree, varies from light pink to a quasi-purple, depending upon the variety and the weather conditions at the time of gathering. Olive trees bear commercially at the age of eight years, continuing to be prolific beyond the age of twenty-five. Indeed, some of them live and bear for centuries.

VARIETY AND ACREAGE

Five main varieties dominate olive raising in California; Mission, Manzanillo, Sevillano, Ascolano, and Barouni. Fifty other varieties are grown in this state, while new types are being developed experimentally. The bearing acreages for 1951 were:[5]

Variety	Bearing Acreage	Per cent of Total Bearing Acreage
Mission	13,840	50.4
Manzanillo	7,754	28.3
Sevillano	3,819	13.9
Ascolano	702	2.6
Barouni	302	1.1
Others	1,016	3.7
Total bearing acreage	27,433	100.00 per cent
Non-bearing acreage	3,731	
Total acreage	31,164	

HARVESTING

The greatest expense involved in olive production is harvesting the crop. This constitutes about 60 per cent of the total production labor cost, or 35 per cent of the gross crop returns. Very tall trees (thirty feet), excessive bush and dead growth in the trees, heavy orchard grass, severe infestations of the trees by black scale are among the factors that complicate and increase expenditures.[6]

The harvesting of pickle olives extends from mid-September to mid-November. Canning-olive harvesting commences around the

[5] California Crop and Livestock Reporting Service.

[6] H. T. Hartmann, *op. cit.*, p. 48.

first of October. Picking is done by hand, necessitating great care that the fruit is sent to the cannery in the best possible condition. Olives are easily damaged by bruising, causing cut skins and misshapen fruit. The harvest of oil olives continues from about the middle of December thru March. Altho the fruit will be shrivelled and perhaps frozen because of the low winter temperatures, this does not impair its value for oil extraction. Olives are graded according to size as shown by the accompanying chart (Fig. 4). These grades are established on a count-per-pound basis, as regu-

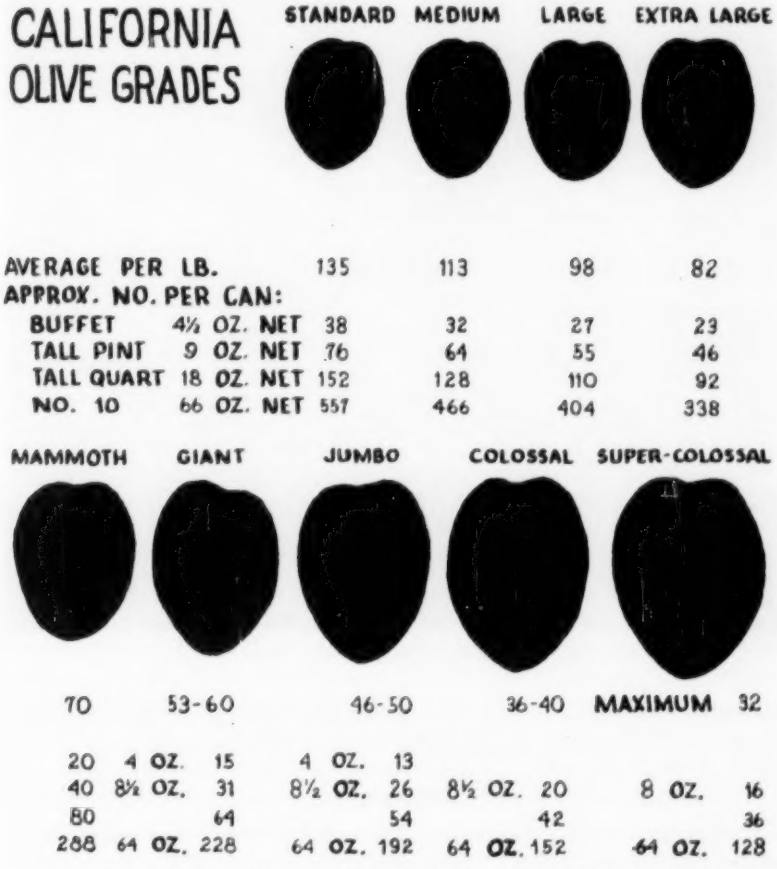
CALIFORNIA
OLIVE GRADES
STANDARD
MEDIUM
LARGE
EXTRA LARGE
AVERAGE PER LB. 135 113 98 82
APPROX. NO. PER CAN:
BUFFET 4½ OZ. NET 38 32 27 23
TALL PINT 9 OZ. NET 76 64 55 46
TALL QUART 18 OZ. NET 152 128 110 92
NO. 10 66 OZ. NET 557 466 404 338
MAMMOTH
GIANT
JUMBO
COLOSSAL
SUPER-COLOSSAL
70 53-60 46-50 36-40 MAXIMUM 32
20 4 OZ. 15 4 OZ. 13
40 8½ OZ. 31 8½ OZ. 26 8½ OZ. 20 8 OZ. 16
80 64 54 42 36
288 64 OZ. 228 64 OZ. 192 64 OZ. 152 64 OZ. 128

FIG. 4. (Source: Olive Advisory Board, San Francisco, California)

lated by law. Of the major canning varieties, Mission and Manzanillo furnish "Small" thru "Mammoth" sizes, while Sevillano and Ascolano provide the "Mammoth" and still larger grades.

The annual production increases with improved cultural practices, altho climatic conditions influence the total also. From 1922 to 1950, the average annual yield ranged from one-fourth of a ton to nearly three tons per acre. During the past decade, the state

Fig. 5. Lye vats used in the curing process.

average has been 1.8 tons. The fluctuation in yield not infrequently confronts the industry with difficult marketing problems.

Processing

Both ripe and green olives are exceedingly bitter when taken from the tree because of their glucoside content. Curing processes have been evolved which eradicate this natural flavor. In one type

of processing the olives are taken from the tree and subjected directly to five or six dilute lye treatments in vats after which they are exposed to air for twenty-four to forty-eight hours between treatments to permit oxidation (Fig. 5). Then the olives are soaked in cold water which is changed three or four times daily to remove the lye. When the latter is removed, the olives are processed in dilute brine for two to five days, and then canned in a similar solution and sterilized at 240°F. for sixty minutes. In another process, the olives are taken directly from the tree and placed in a tank where circulating water removes the lye mechanically. Green-ripe olives (olives which have the true nut-like flavor of ripe olives but are green in color) for canning are processed directly from the tree by one or two lye treatments but without exposure to air. This destroys the bitterness without darkening the color. A time maximum, not to exceed fourteen hours, elapses between harvesting and the brining or other kinds of preparation.

To minimize processing and spoilage losses, ripe olives are handled in small lots of from 1,000 to 6,000 pounds. Because ripe olives are handled in small lots, and because the fruit is received during a period of two and one-half months, the total processing time for completing a season's pack is several months after the opening of harvest. The industry pack is practically completed by June 30, or six and one-half months after the harvest.

Spanish style olives are packed full size while green. A diluted lye solution is applied to penetrate from one-fourth to two-thirds of the way to the pit. This lye is then leached out for twenty to forty-eight hours. After this step, the olives are barrelled in heavy brine for lactic fermentation. One to 2 per cent of dextrose sugar often is added to furnish fermentable carbohydrate if the fermentation ceases for lack of natural sugar. An average of six months is necessary to complete fermentation. Green olives are packed in glass in fresh brine; they may be pasteurized in the container. Most ripe olives, however, are packed in tin, altho a few, particularly the larger sizes, are packed in glass.

Originally, olives were produced in California only for their oil content. At the turn of the century, the current process for preparing the canned ripe olive was developed. Subsequently, expressing oil has assumed a secondary place. Today, ripe processing is the major role of the olive. The accompanying table shows crop utilization for the period 1948-1952, with total crop tonnage

figures being given for each year. Utilization then is shown as a percentage of the total.[10]

	Crop Utilization				
Total production	1948	1949	1950	1951	1952
tons	48,000	40,000	58,000	35,000	42,000
Utilization (percentage of production)					
Canned Ripe and Green Ripe	57.3	34.2	23.3	58.3	59.2
Spanish Green	6.9	6.5	9.8	7.4	6.2
Sicilians	1.0	2.8	2.1	2.3	2.9
Greeks	1.2	4.5	2.6	2.3	3.3
Crushed for oil	29.8	48.5	57.9	22.6	23.2
Fresh Shipments	0.2	1.5	1.2	1.7	0.5
Other Uses	3.6	2.0	3.1	5.4	4.7
	100.00	100.00	100.00	100.00	100.00

In order to understand better these figures, one should consider four circumstances which contribute toward the importance of canned ripe olives—especially insofar as the future of California's olive industry is concerned: (a) present and prospective world market prices on olive oil are at such a low level as to make oil production unprofitable to the California growers; (b) cheap foreign labor makes it impossible for the California industry to compete in price on Spanish style olives; (c) improved cultural methods in California can be expected to produce more of the larger grades of olives, resulting in larger packs of canned ripe olives; (d) possibilities for foreign competition on canned ripe olives are remote. Olive producing countries of the Mediterranean region cannot produce the *ripe* olive because fully ripened olives there are infected with an olive-fly insect. This fly destroys the olive meat and injures the fruit for picking. In these countries olives are picked green just before the pest attacks, thus saving the crop. This fly is, fortunately, unknown in California, thanks to rigid quarantine laws.

Marketing

In the early days, the olive industry in California logically had an almost exclusively western market. In recent years, with an increasing annual pack of canned ripe olives, the industry has been promoting more intensively the United States markets as a whole.

[10] "Food Trade Marketing Survey." California Olive Association, Sacramento, 1953, p. 16.

About 39 per cent of the ripe olive pack is consumed in the Pacific Coast States, and another 5 per cent in the Mountain states. Therefore, the West, with about 13 per cent of the nation's population, consumes approximately 44 per cent of the ripe olive supply. While western sales volume has not declined in recent years, the proportion of the national total sold in the West has been decreasing. The annual total shipments of ripe olives to the trade is the best barometer for consumer buying. On the basis of this annual total, the per capita consumption of ripe olives in the United States for 1951-52 averaged four and one-half ounces. This annual consumption varies widely among the different parts of the country, from one-fourth of an ounce per capita in the Eastern-south-central states (Kentucky, Tennessee, Alabama, Mississippi) to nineteen ounces per capita in California, as based upon the marketing year 1951-52.

Since the first planting of olives in Loreto, the industry has undergone striking changes not only in California, but in other parts of the world. It is associated generally with the Mediterranean lands, but other countries where the olive is grown are Portugal, New Zealand, Australia, sub-tropical South America, Madagascar, China, Burma, Malacca, Abyssinia, India, Afghanistan, Transcaucasia, and the southern coast of the Arabian Peninsula. Despite the length of this list, all the countries outside of the Mediterranean basin produce only a tiny percentage of the world crop. Europe produces about 90 per cent; the remaining 9 per cent is scattered among the other countries having a Mediterranean climate. Spain is the largest producer and exporter of green olives and olive oil, accounting for over half of the world's supply. The olive is an important export commodity of Greece, Italy, and France.

The share of California in the total production of the United States is much larger in proportion than is that of Spain in the world as a whole. This state produces 99 per cent of all olives grown in the United States. California olive oil supplied only 14 per cent of the total needs of the U.S. during the years from 1947 to 1952, however, whereas Spain supplied most of the remainder. This modern improved type of olive oil was not processed commercially in California until 1935. The output, however, has not increased since 1940 because of competition from imported products.

Obviously, California's olive industry is based upon the produc-

tion of canned ripe olives (black and green) which have provided the most profitable outlet for the grower in a domestic market free from foreign competition. The California Olive Association[11] has worked hard and effectively to stimulate nationwide interest in California ripe olives, mostly by means of large-scale advertising and public information services.

Growers today regard with optimism the future of the ripe-olive industry. At this point in California's history, however, the olive growers are not pausing to rest complacently upon their past successes in the industry. They realize that the "peace, plentitude, and prosperity" which the olive has symbolized since Biblical times are in themselves no virtues without being backed by painstaking care, the unrelenting search for methodological improvements, and the centuries of vision, which have brought the olive to its present state of fruition.

Quite apart from material considerations, the olive merits considerable regard. Laden with fruit, this tree is a beautiful sight, and often is grown for ornamental purposes in California and other states. The leaves, dark green on one side, silver grey on the other, remain on the tree thruout the year. The olive tree is beautiful as well as profitable, and well merits the age-old admiration man has held for it.

[11] Organized in 1920 to promote the interest of the ripe olive industry, mainly thru collecting and pooling information. Its expressed objectives are: 1) to carry out advertising and sales promotion activities for California canned olives; 2) to establish certain minimum quality requirements for canned olives and California green olives; and 3) to establish certain minimum size requirements for canned, whole, or pitted olives. The headquarters are in San Francisco.

GEOGRAPHIC SETTING OF SAN FRANCISCO

ERHARD ROSTLUND
University of California, Berkeley

The two most prominent natural features in the setting of San Francisco are hills and water. The highest hills in the city itself are only about 900 feet in elevation, but many peaks and ridges around the bay rise to 2000 and 3000 feet, such as Mount Tamalpais, Montara Mountains, and the Diablo Range (Fig 1). The geological foundation consists predominantly of sedimentary strata formed in Mesozoic and later time, with intrusive serpentine and basalt cropping out in a few places. These rocks contain no abundant

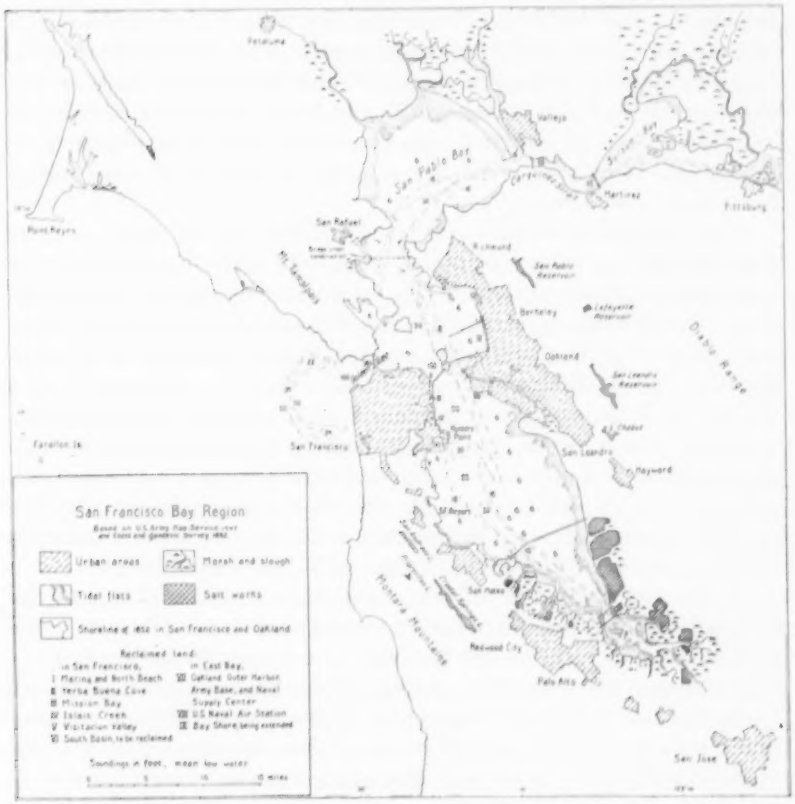

FIG. 1

mineral deposits, and mining has never been an important activity in the Bay Region.

The other prominent feature, which can be seen from every hill, is marine or salt water in bays, estuaries, sloughs, and tidal flats. The local supply of fresh water is not plentiful, for the annual rainfall is on the average less than 25 inches, and at the present time from 85 to 90 per cent of the water used in San Francisco and the cities of the East Bay comes in aqueducts from the Sierra Nevada. Almost all of the lakes in the region are man-made reservoirs.

Vegetation Cover

The tide of settlements has not yet inundated all the hilltops, and some of them remain in a more or less natural state. Visitors from the East or the Pacific Northwest usually think that the golden hills of California look rather bleak and barren, and the first Europeans who saw the San Francisco region thought likewise. Typical of the old descriptions is the observation made by Richard Henry Dana in 1835: "West of Yerba Buena Cove were dreary sandhills, with little grass to be seen and few trees, and beyond them were higher hills, steep and barren."

One trouble San Francisco has not had is that of clearing away forests; the problem has rather been one of finding lumber for construction, most of which has come from northern California, Oregon, and Washington. But some of the lumber used in the early days came from the slopes of Mount Tamalpais, Montara Mountains, and the Peralta Redwoods east of Oakland. A fine grove of virgin timber has been preserved in Muir Woods south of Mount Tamalpais, but elsewhere the stands were heavily logged, and only second-growth trees are now to be seen. Redwood City got its name from a flourishing lumber industry in the 1850's, and place names such as Mill Valley and Corte Madera are reminders of former sawmills and logging operations in the vicinity of Mount Tamalpais.

A few isolated stands of real forest were thus found around the bay, mainly redwood mixed with some Douglas fir. Elsewhere the original vegetation consisted of alder, cottonwood, madrono, California laurel, and the like, growing along the canyons where such trees still occur; brushy vegetation of the chaparral type covered many hills and slopes, and there were also extensive grassy areas studded with oaks. In some of the regions the oaks were numerous and formed rather large groves, such as the one for which the city of Oakland was named.

The botanists have given us many good books describing the flora, but we have not yet anything that can be called a definitive study of the historical plant geography of the Bay Region. No one, to my knowledge, has tried to reconstruct the original vegetation on a detailed distribution map, or to explain the distribution—which has some curious features that need to be explained—or to trace step by step the process whereby the old vegetation has been changed and partially replaced by a new one. Historical geographers in this region need not go far to find work to do.

It is clear, at any rate, that the original vegetation has been greatly affected by human activity. The grasslands have become farms; the once brush-clad slopes are now covered with homes set among ornamental shrubs and garden plants of exotic origin; the forests have been logged off; many new trees have been introduced, such as elm, birch, palm, Monterey pine and cypress, and especially eucalyptus. The present wooded aspect of the ridges above Oakland and Berkeley and the heights in San Francisco is largely the result of widespread planting of eucalyptus, which is now the most common tree in the hills of the Bay Region.

Origin and Significance of the Bay

San Francisco bay occupies a structural valley or basin that was formed when the Coast Ranges were folded, faulted, warped, and uplifted in a crustal disturbance that probably began in Pliocene time and continued into the Pleistocene. This basin differs from the other long valleys in the Coast Ranges in that it has been invaded by an arm of the sea, a difference resulting from two developments. First, at some time not definitely known but perhaps in the Pliocene, the combined Sacramento-San Joaquin river found its way to the sea at a point where the Golden Gate is now situated; and as the Coast Ranges rose, the river maintained its course across them by downcutting. The deep Carquinez Strait and the even deeper Golden Gate thus originated as stream-cut canyons. The second development was the invasion of water from the sea through the Golden Gate, either because the land subsided or because the sea level rose. Subsidence is the older explanation, but now the consensus of opinion is that eustatic rise of sea level in post-glacial time is sufficient to account for the water in the bay.

A cresent-shaped bar lies about five miles outside the western entrance to the Golden Gate (Fig. 1). West of the bar the water gradually deepens to the edge of the continental shelf, which is

situated only five or six miles beyond the Farallon Islands. In 1884 the San Francisco newspapers carried a story saying that the bar was shoaling dangerously, one channel had already been abandoned, and presently ships might not be able to enter the harbor at all—naturally an alarming bit of news to a maritime city. George Davidson, who had long been active in the Coast and Geodetic Service, allayed the fears by pointing out that there had been no marked change in the bar between the surveys of 1855 and 1875; in fact, no significant shoaling of the bar is known to have taken place during the last 100 years. Inside the bar the depths increase to a maximum of 380 feet in the Golden Gate, which is by far the deepest part of the bay. Lying outside the Golden Gate, then, is an accumulation of material that can hardly be anything else but an enormous alluvial fan, the crest of which is the bar. The foundation of the bar was presumably laid at a time when sea level stood lower, and the silt-laden river discharged directly into the sea thru the canyon of the Golden Gate. A certain amount of fine river silt is still carried out to sea by the tidal current, but at the present time most of it settles in the bay. The upshot is that while San Francisco has a bar that is not shoaling, it has a bay that is.

Most of the bay is now very shallow. It is estimated that in three quarters of its area the bay is less than eighteen feet deep, and much of it has less that six feet of water. The total amount of silt that has accumulated in the bay is not known, but it must be very large; borings made when the bridge between San Francisco and Oakland was built revealed deposits that were over 300 feet thick. The rate of silting has no doubt been significantly increased by the activities of the American settlers, particularly by the hydraulic mining in the Sierras, but the bay was already shallow when the Spaniards first came. In his diary of 1775 Pedro Font wrote, "Most of the shore of the bay is not clean, but muddy, miry, full of sloughs, and for that reason bad."

The San Francisco bay is an excellent harbor in that it provides good shelter and anchorage, but originally no good landing places suitable for large ships existed, except perhaps in Carquinez Strait. The bay provided an opportunity for maritime commerce, but it was not a ready-made opportunity. Most simply put, the modern harbor facilities in San Francisco have been made by building the waterfront *out* to deep water, whereas in the East Bay deep water has been brought *in* to the waterfront by dredging the mud flats.

The advantage early San Francisco had over the other potential ports around the bay did not consist in having a better landing place, but in having good and spacious anchorage in deep water close to a landing place that could be used by small boats and lighters; and, furthermore, it was the first anchorage inside the Golden Gate. This advantage was one of the location factors of the city of San Francisco. Another and perhaps more potent factor was that the citizens of San Francisco, once having settled on their hilly and windy peninsula that lacked everything except easy access from the sea, were determined to stay and make a success of their settlement.

The bay has been changed in several respects. A number of dangerous rocks have been blasted away to safe depths, islands have been built, several bridges now span the bay, and others are under construction or being planned. The most ambitious scheme for changing the bay is the proposal commonly called the Reber plan. The gist of this plan is to make freshwater bodies of the northern and southern parts of the bay by enclosing them behind great dikes, one of which would run between San Francisco and Oakland, and the other west from Richmond, where a new bridge is now being built. Whether the plan ever will, or should be, carried out is hard to say. It seems certain that if the dikes are built, the freshwater basins behind them will collect all of the river silt and in time might become mud flats. Moreover, the complete prevention of the river water from reaching the sea in its natural way would contribute to the starvation of marine life and adversely affect the fisheries in the Gulf of the Farallones. The tide-water area in the bay would also be reduced very much, a result that would no doubt seriously complicate the problem of sewage disposal.

Besides its function as a harbor, the bay is exceedingly important in that it provides an opportunity for solving the sewage problem of a population now numbering close to 3 million people, and expected to reach 3½ million before very long (Fig. 1). Sanitation engineers calculate that the bay has a very great capacity of absorbing waste material, provided the sewage is properly treated and the effluent thoroly mixed with the bay water. This great capacity depends on several factors: the large volume of the bay; the low temperature of the water which therefore can and does contain a large amount of dissolved oxygen, values ranging from 85 to 95 per cent of saturation; and, most important of all, the great tidal

prism. About 3 million acre-feet, or roughly one-sixth of the volume of water in the bay, flows out to sea at the time of ebb, and the same amount of clean sea water returns on the flood.

In the past, unfortunately, sewage was not treated nor was the effluent discharged in deep water, and by the 1930's the bay had become very badly polluted. San Francisco began the operation of its first modern sewage disposal plant in 1939. In 1951 six of the East Bay cities completed an integrated plant, which is so designed that it can be expanded to take care of the expected load in the year 2000. The sewage problem is not yet altogether solved, but it might be said that the Bay Region is well on its way toward the goal of a complete solution. It is not certain, however, that the goal will be reached. A sewage bond issue just barely passed in a municipal election held in the summer of 1954, suggesting that almost half of the city voters would rather economize than clean up the bay. A point sometimes overlooked is that cleaning up the bay would not only make the shores healthful and more attractive, but would help to rehabilitate the formerly abundant marine life. Some folk seem to regard the point as irrelevant, and say that those who want shrimps, crabs, or other sea food can always go to Fisherman's Wharf.

The Site of San Francisco

The major part of the land shown on the map is hill country, the minor part is level, and this is particularly true of the northern part of the San Francisco peninsula where the city now stands (Fig. 1). Curiously enough, the site with the smallest area of easy terrain was selected for the largest city in the Bay Region. But the early San Franciscans, at great expense and much labor, went to work making level ground. Nearly a square mile of land was gained by filling in Yerba Buena Cove, an equally large area was reclaimed at Marina and North Beach, and even more at Mission Bay and Islais Creek. In 1855 the authors of "The Annuals of San Francisco" said, "What with digging and filling, piling and planking, grading and regrading the streets, shifting and rebuilding and again rebuilding the houses, millions upon millions of dollars have been spent."

The remark was made only a few years after the gold rush, and the work of making level ground has continued, and is continuing. The area of Hunters Point has been doubled in recent years, the new San Francisco Airport is on man-made ground, and the city is now planning to reclaim South Basin on the southern side of

Hunters Point.

General William T. Sherman who, like many other government officials, had a low opinion of the San Francisco peninsula as a site for a city, advocated the building of a metropolis at Carquinez Strait. In his memoirs published about 80 years ago Sherman wrote that half of the money and half of the labor bestowed on San Francisco could have created a city of palaces east of the bay. Plenty of money and labor have been expended in the East Bay since Sherman's time, and altho it can scarcely be said that this expenditure has created a row of palaces, it has produced a string of cities, harbors, and factories. It has contributed to the creation of one of the outstanding man-made features of the San Francisco region, namely an industrial belt that follows the shores of the bay.

INDUSTRIAL BELT

The work-a-day world of factories in San Francisco early became located south of Market Street (south of Yerba Buena Cove on the map), and gradually expanded southward. Incidentally, the shipyards, iron works, and slaughter houses became established in the sunniest and warmest part of the city, while the residential districts grew westward over the hills and into the fog belt.

It is not strange that the factories soon spread farther afield, for there simply was not room enough in San Francisco. Today a nearly continuous industrial belt fringes the bay from San Francisco to San Jose, and along the eastern shore from San Jose to Suisun Bay. Salt works are located around the southern end of the bay. Oil refineries extend along the shore of San Pablo Bay from Richmond to Martinez. There are navy shipyards at Vallejo and Hunters Point, sugar refineries and smelters along Carquinez Strait, steel and chemical factories at Pittsburg, and hundreds of other types of plants all around the bay. Some are old but many are new, including branch factories of many national concerns: Chrysler, General Motors, Ford, Westinghouse, General Electric, Colgate-Palmolive, Leslie Salt, Owens-Corning Fiberglass, and a long list of others. And the industrial expansion continues: Ford has just opened a new plant at Milpitas a few miles north of San Jose; Crown Zellerbach has announced plans for a new paper mill at Antioch a short distance upriver from Pittsburg, and almost every week one hears of similar announcements. This is good news to some people, but to others it is not, for the industrial belt is encroaching on the best agricultural land in the Bay area. It might

be said that for every factory that goes up a farm goes down: thousands of fruit trees have been, and are being, bulldozed away to make room for industrial plants and homes of factory people.

Perhaps we are approaching the situation forecast by the historian Hubert Howe Bancroft about forty years ago. "What we need most of all is industry around this bay," he said, "and there will be thousands of industries not dreamt of today, all one city, and a population of ten million peole or more."

It is not easy to envisage the appearance of Bancroft's future landscape, but perhaps a pre-view of it might be had by traveling south from Oakland on the new East Shore Freeway. New industrial plants, drive-in-theaters, and modern integrated shopping centers are seen in the distance. However most of the land is covered with seemingly endless rows upon rows of mass-produced family dwellings that appear to differ visibly in only two respects: some of the roofs are red, others are blue, yet others are green, and the other note of variety is that not all of the houses have exactly the same type of television aerial. Dozens of other towns of the future have mushroomed south of San Francisco, down on the peninsula, and around San Jose. Not all of them are monotonous, for many are characterized by a carefully contrived variety. What most of these settlements have in common is that they are planned and mass-produced; each is essentially the product of a single mind, or at least of a single construction firm. One of the big builders recently said, "We don't do homes, we do communities." There is a new and different arrangement of working space and living space developing in the former rural sections around San Francisco Bay, as there is around other American cities, a development that deserves more of the attention of geographers than it has received so far.

Some people like to live in these new communities, but others say that they find new problems in them and wish that they could find an old place in the hills of San Francisco or Berkeley. The residents in Bancroft's future city of 10 million people will no doubt have many problems to think about. They will have to make up their minds on many more bond issues for sewage disposal plants. The freshwater supply is just about adequate at the present time, but both San Francisco and the East Bay cities are seeking rights to more watersheds and planning more reservoirs in the Sierras. And smog is no longer an unfamiliar phenomenon in the Bay Region.

GEOGRAPHY IN SOCIAL STUDIES TEXTBOOKS FOR GRADE SIX*

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Since social studies textbooks combine and integrate geography, history, and many other subjects, a question arises as to how much and what kind of geography they contain. In the process of integration or fusion has one overshadowed the other? Is geography used only as a background for history or do the books contribute to a student's growing knowledge of geography?

For many years this integration of subject matter has been in progress. It is known that the information received from various fields on one subject creates a more intense impression or picture than isolated information. It is like an artist bringing into play the many beautiful colors to vividly portray his vision. Therefore, it is excellent to have geography and history and the many other subjects brought together in one book—provided they do not lose their identity.

In so far as the writer could ascertain, there has been nothing published on the amount of geography found in the social studies texts for grade six. Therefore, in order to determine the amount of geography in these texts, it was extremely important to organize criteria and give definitions so that any number of books might be checked by the same standard. Since there was no course of study or criteria in geography prescribed by the state of New Jersey, the writer had to set up criteria for geography. Therefore, the criteria used are the writer's ideas after much thought and research as to what is meant by and included in Geography. In setting up this criteria, C. L. White and G. T. Renner's *Human Geography, An Ecological Study of Society*, furnished the main theme. The definitions, many of which are direct quotations from resource geography books are found on 51 pages of the Appendix in the original thesis.

The writer conferred with the publishers at the New Jersey Education Association convention held in November, 1953. Approximately twenty-five schools and two city systems were consulted, but

* Thesis written by author under same title. This article is intended to show how the amount of geography and the kind was determined, and the results of the study.

not all of them used the social studies texts. Many taught geography and history as separate subjects. One of the twenty-five had recently switched from social studies to geography and history as such. Sixteen publishers were recipients of letters asking for social studies books recommended for grade six and for information on any research conducted on the books. Of the twelve which answered, nine had no social studies textbooks for grade six. One of the three sent a book to writer with a survey of work conducted on it for geography, which was mostly background material for history. This was used as Book I.

The following are the books that were checked:

Book 1. Moore and others, *Building Our World*. Charles Scribner's Sons, New York, 1948 and 1951.

Book 2. Dawson, Tiegs, and Adams, *Your World and Mine*. Ginn and Company, New York, 1951.

Book 3. Cutright, and others, *Living Together in the Old World*. Macmillan Company, New York, 1953.

Book 4. Meyer, Hamer, and Grisso, *The Old World and Its Gifts*. Rev. ed., Follett Publishing Company, New York, 1948 and 1952.

Each of the four textbooks recommended for grade six was carefully read and checked, sentence by sentence. To evaluate each book, two lists were used. One list or chart had the kind and amount of geography contained, the other was a chart of the functional classification. As each sentence was read, the writer determined whether it contained geography. When the sentence contained geography, it was checked twice, once on each chart. The sentences under the pictures and maps were also checked and placed on the list on each chart if they belonged to geography.

To find the percentage of geography sentences in the book, a total of all the sentences must be found. The writer estimated the number of sentences in the entire book instead of actually counting them. The following was the procedure used in calculating the number of sentences in a book. The writer counted the sentences on 25 pages, putting the number down on a piece of paper after each page was counted. Only the number of sentences contained in the text were counted. This total number was then added and divided by 25 to find the average of one page. It was thought that sentence structure and length would vary, but that an average would be found over 25 pages, since books for grade six do have certain standards for complexity of sentence length, sentence structure, and word content.

The number of pages on which there were no sentences were

counted and subtracted from the number of pages the book contained. The corrected number of pages was then multiplied by the average number of sentences on each page. The sentences under the diagrams, pictures, and maps, were actually counted and added to the sum total of all the sentences. Therefore, Book 1 has approximately 8,294 sentences; Book 2, approximately 10,850; Book 3, approximately 11,630; and Book 4, approximately 14,390.

FINDINGS

Book 1 is a very readable book but it is mostly history with a geographic background, and it is suggested therefore, that it be used as such. Of the total book, 15.67 per cent is concerned with geography as set up on the charts. Most of the 26 maps were picture representations of the countries discussed in the book, without the aid of parallels and meridians. Of the 208 pictures in the book, 65 (or 31 per cent) are of geographic value.

Book 2 is very good. Actual sentence count for geography is more than twice as much as Book 1, but is only 27.91 per cent of the entire book. There are 54 maps, most of which had parallels and meridians to show latitude and longitude. Latitude and longitude are discussed in the text, and work is given in connection with them. When a map of a specific area is pictured, the part is blocked out on a larger concept inset map. Thus, the concept of location is seen immediately. Of the 302 pictures and diagrams, 155 or 51.32 per cent are of geographic value. Not only does this book consist of history in a geographical setting but presents facts in geography as well.

Book 3 is the newest text and is excellent. It has an actual sentence count of more than three times Book 1 in the number of geography sentences, 40.29 per cent of the total number of sentences in the book. It has, therefore, the highest percentage of geography of the books reviewed. It approaches the study of Social Studies in an excellent manner and integrates geography and history very well. The maps are excellent including the relief maps in the front of the book. There are 97 maps altogether. Of the 466 pictures and diagrams, 231 or 49.57 per cent have geographic value. This book shows that the geography of a region is important to the past and present life of said region.

Books 4 approach the study of Social Studies in an excellent manner and integrate geography and history very well. The sum total of geography is approximately 39.75 per cent. There are

several sentences under each picture, diagram, or map which are duplicated in the text. The maps are good and include rainfall, and population maps as well as relief maps. There are 109 in all. Of the 577 pictures and diagrams, 389 or 65.68 per cent are of geographic value. These books also show that the geography of a region is important to the past and present life of said region..The 1952 revised edition brings the book to the copyright date with the historical and political changes. Except for a very few pictures (less than five) and map changes (not more than 10), they remain the same. The text, too, is the same except with sentence revision in a few places, and revision of material under U.S.S.R. Some of the tables are brought to the last census count and the political changes are noted in them. An addition of the mining of a few minerals, like uranium from Africa, tin from China, has been inserted in the discussion of these countries. But on the whole, page for page, picture for picture, map for map, no great change has been made. The geography in the 1952 revised edition is comparatively the same as the 1948 revised edition, the change, if any, in percentage is negligible.

All four books place their emphasis mainly on Political and Economic Geography and on the Human factor. All four books have sentences showing the relationship between geography and history and a few showing that geography was the direct cause of certain historical events, but Book 3 stresses these facts thruout.

There is some mapwork in each book, but Books 2, 3, and 4 have maps on which geographical location and geomatical position are readily seen. Books 3 and 4 discuss map projections. Book 3 has illustrations of the discussed projections. Book 4 uses its illustrations in the text.

Each book strives to make the student conscious of the wonderful land in which he lives and the very fine form of government that we have. Book 1 stresses our American ideals, Book 2 the four freedoms and democracy, Book 3 the need for peace, unity, and understanding, and Book 4 how wonderful to live in these United States. This is done by making comparisons of other lands, standards of living, and the human influence or lack of it, on the natural environment.

Conclusions

It is a splendid attribute to be capable of integrating and unifying subjects, for it is thru these media that learning takes place

much more readily than if various subjects are taught in isolated fashion. These books, therefore, are good guides in bringing together the various subjects at the propitious time. They are, however, limited in space. To follow and use these books exclusively would only give part of the entire picture. Supplementary geography and history books and visual aids materials should be used along with the books in social studies. And since geography is essential in understanding the World Community with its people and their physical environment which influences the entire cultural pattern; it is, therefore, absolutely necessary that geography keep its identity and at no time lose it by just being a "backdrop" for the drama of "history" or any other subject! The importance of geography and geographical thinking for world peace can not be over estimated. Therefore, many times, extra geography periods should supplement the social studies period.

A guide in geography published by the state and written by outstanding teachers and professors of geography, would be a definite help to teachers in the classroom. The fundamental facts and concepts would not encroach upon the individual Boards of Education and their right to set up a course of study but would strengthen the background and pilot the teacher toward giving the individual school curriculum a fuller, more worth-while meaning.

The declining knowledge and number of courses given in geography, as such, in our schools is actually appalling. Since it is thru the fundamental comprehension of geography and the ability to think geographically, that World Peace will be attained; it is a grievous mistake on the part of all who are responsible for this decline. Only by relating human affairs to their natural environment, understanding and tolerating the differences in ideas and cultural patterns of all people may we hope for world peace. Therefore, good geography courses, integrating other subjects, are necessary thruout all schools and colleges.

Chart IX

Kind and Amount Geography	Number of sentences Book 1	Book 2	Book 3	Book 4
Weather and Climate	96	193	356	360
Flora	39	69	122	124
Fauna	56	86	96	171
Microscopic Life	3	2	11	11
Land Relief and Landforms	108	325	264	422
Soil	10	38	76	85
Rocks and Minerals	38	126	209	231
Ground Water	3	18	15	34
Surface Water	68	179	288	272
Ocean	9	37	43	93
Coast Zone or Littoral	21	53	34	65
Areal Size or Space	31	42	114	118
Regional Form or Shape	5	22	17	13
Geomatical Position	26	55	163	210
Site and Situation	38	109	198	102
Geographical Location	101	218	122	146
Political Geography	177	318	636	593
Economic Geography	345	915	1517	2322
Products	66	93	160	151
Imports, Exports	35	103	65	122
Unclassifiable	25	28	29	32
Description of Map Projections			51	43
Total	1300	3029	4686	5720
Approximate sentences in book	8294	10,850	11,630	14,390
Percent of book	15.67	27.91	40.29	39.75

Chart XI

Functional Classification Geography	Number of sentences Book 1	Book 2	Book 3	Book 4
Factual				
Physical	355	834	1084	1110
Places	137	303	552	410
Human	540	1363	2208	3256
Plant	22	49	99	116
Animal	46	79	100	170
Relationship	18	44	68	61
Causal	12	28	35	40
Comparative	44	54	258	194
Unclassifiable	13	3	14	21
Mapwork	113	272	217	299
Description of map projections			51	43
Total	1300	3029	4686	5720
Approximate sentences in book	8,294	10,850	11,630	14,390
Percent of book	15.67	27.91	40.29	39.75
Maps	26	54	97	109
Pictures and diagrams	65	155	231	389
Words, things to do questions, etc.	230	292	886	575

THE MAGNETIC MAP

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The experts have not yet come to a full understanding of the monsoon, and often instructors find that explaining this complex weather phenomenon as it occurs in India takes many diagrams even when simplified as much as possible. Teaching the monsoon effectively requires showing graphically the changing relationships between high and low pressure areas which characterize the Indian monsoon. To overcome this difficulty I have developed a magnetic map which allows the teacher to move the pressure belt over the face of the map in order to give a visual presentation of the movement as it occurs.

The finished map is a hanging wall map 4'3½" long and 3'6" wide. One of Phillips' Comparative Wall Map Series was used for a base map. The "Political Divisions and Communications of India" map was chosen since it shows the rivers more clearly. All main rivers were included and the map portrays Ceylon, West and East Pakistan, Burma, and part of Malaya and Sumatra. The finished map has considerably longer north-south extent than the Phillips' map, since the equator was included in order to demonstrate the relation of the equatorial low and southern sub-tropical high to the monsoon.

The rivers and political boundaries are painted in with blue and red poster paint respectively. Relief is painted on also in a yellowish brown. The relief map in *Bartholomew's Advanced Atlas of Modern Geography* was used and areas higher than 660 feet were shown. On top of this I used Zip-a-Tone to indicate those areas having less than 20 inches and more than 80 inches of annual precipitation. According to George B. Cressey, those areas having 20" or less rainfall annually practice irrigation and plan against fluctuations, while areas with 80" or more precipitation will always have an excess of moisture.[1] A dense spot pattern was used to symbolize the latter areas, while the drier areas were indicated by a sparse pattern of crosses. The Zip-a-Tone patterns turned out to be very effective.

[1] Cressey, George B., *Asia's Lands and Peoples*, McGraw-Hill Book Company, Inc. 1951, p. 439.

When the base map had been completed a series of arrows, ovals, and circles were cut out of stiff paper to represent winds, high pressure and low pressure areas. The two cut-outs representing the equatorial low and southern sub-tropical high are 12″ × 4″. The split northern subtropical high is represented by two circles, each 4½″ in diameter. The continental low is an oval 8″ × 4″. Winds are represented by arrows 5″ in length. All these areas are bordered in black to heighten the contrast between them and the base map. On the back of each cut-out was glued a magnet approximately ¾″ × ¼″ × ⅛″; the magnets were taken from the bases of a common novelty toy sold under the name of "Tricky Dogs."[2] The cut-out with its attached magnet is held onto the front of the map simply by holding the second magnet behind the map; the paper area can be moved simply by moving the rear magnet. This gives the effect of a moving pressure area or wind on the face of the map. One would expect the magnets to lose contact, but as long as the rear one is moved slowly and steadily the process works successfully.

There are many ways in which this principle of magnetism could be developed. More satisfactory, but also more expensive, would be a complete metal backing for the map so that the rear magnets would no longer be necessary and the instructor could move the cut-outs from the front. The finished map would then resemble the type of magnetic message board found in many kitchens. It should also be useful when attempting to teach primary or high school students the basic elements of climate and might be broadened to include other branches of geography.

[2] These can be bought in most novelty stores and in Grand Central Station, New York.

PRODUCTS AND PROJECTS IN HIGH SCHOOL GEOGRAPHY

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Santa Rosa, California

Variation is a valuable tool in maintaining pupil interest. School work should give an opportunity for many types of pupil contribution; it should encourage students to carry what they are doing in class into their daily lives. "Products" and "projects" are two methods useful in helping students share their interests with one another. What we call "projects" are articles made by students to illustrate something being studied, i.e., buildings, maps, scrapbooks. The projects here considered are produced within a period of a few weeks. By "products" we mean samples of various things being studied, i.e., minerals, tools, farm products, historical costumes, pictures.

Products and projects have a number of important values: 1) they give students an opportunity to do independent work on something which especially interests them and to develop individual contributions to the class work; 2) they bring a welcome change from the principally verbal work often done in the classroom; 3) they give students the incentive to investigate thoroly problems of their choice; 4) when placed on display, they bring recognition to those who create them and are enjoyed by those who see them;* and 5) they sometimes afford a chance for the slower students in a class to do outstanding work. This latter is by no means always the case. Many slow students do no better on these assignments than in their verbal work.

In some fields of secondary education, projects and products are utilized to a very high degree, but in many fields they are neglected. Perhaps the reason for this neglect is because teachers aren't trained in how to work out such assignments. Therefore a few suggestions might be of help to teachers contemplating this type of assignment.

The students considered in this article are ninth graders in regular classes of from 30 to 40 students. These are geography classes which are divided into two homogeneously grouped ability levels.

* The first few days that products and projects are in our corridor showcase, there is always a crowd of passers-by "window-shopping."

When products are assigned, we spend about half a class hour discussing what might be brought in. The assignment is given at least a week before it will be due so that students will have enough time to collect the things they want to bring in. Each student is required to tell of the product which he brings: what it is, how it is used, and where it came from. The type of product depends upon the purpose of the assignment. Recently classes collected articles of interest from our county. These included fossil remains, borax in various stages of preparation for market, crude oil from an oil well, cotton bolls in several stages of development and many other things. Products are discussed when brought in, then labelled and placed on display.

Products may be used as part of a large display, for example in a product map, or they may be arranged in a display by themselves. There are many effective methods of using them.

Projects require far more work by the students than do products, but the time is well spent. When assigning projects, a few examples are helpful tho not essential to illustrate what others have done. First, we look at these examples, then we list on the blackboard many possible types of projects: models (and we list possible buildings, machines, etc. which one might copy), maps of various types (for example, pictorial maps and relief maps of salt and flour), scrap books, soap carvings, drawings depicting various events and so on. We talk about methods of making some of these and encourage students to choose as soon as possible the project which they'd like to do. Projects are assigned at least two weeks before they are due. A project is assigned to every student in the class once during the year, and all are due on the same day. After the first assignment, the only projects which are made are those done for extra credit. Students who enjoy this type of work will continue to do it on an extra credit basis.

When the projects are brought in, all available counter space in the room is filled with them. They are discussed, then placed where everyone may see them. The students select some which they arrange in the display case in the corridor.

The amount of detailed discussion in class of either products or projects depends upon the use we wish to make of them and upon the time we wish to spend on any particular phase of the unit. All contributions are, of course, acknowledged and there is a short discussion of each. Some contributions become the basis of or are

the culmination of extensive discussion, reading and research. It should be recognized that a student learns a great deal from the project or collecting the product aside from the additional use to which it is put in the classroom.

Because of the time consumed in making them, projects usually are not ready till we are well into a unit, often not till we complete it. Products lend themselves to use at any time and can easily be used to introduce a unit providing that time is taken well in advance to talk over with students what they should bring.

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THE NATIONAL COUNCIL AT WORK

It is not too early to make plans and reservations for travel to the 18th International Geographical Congress to be held August 8-19, 1956, in Rio de Janeiro. Thirteen sectional meetings cover the subject fields of Cartography and Photography, Geomorphology, Climatology, Hydrography, Biogeography, Human Geography, Geography of Population and Settlement, Medical Geography, Agricultural Geography, Economic Geography, Historical and Political Geography, Regional Geography, Methodology and the Teaching of Geography. In addition, plans include a choice of four excursions before the Congress opens and five others at the close of the Congress. These excursions include trips to all parts of Brazil. Trips vary from 8 days to 18 days at costs ranging from $130.00 to $540.00.

Those wishing to make an early departure from the States should arrange reservations by plane or ship at once. It is possible to enplane from many places such as Miami, Chicago, New York City. At this writing, fares range from $400 to $500 one way by plane; round trip fares from $675 to $900. Ship departures from various Gulf and Atlantic ports range about the same as plane and higher, depending upon the class of accommodations. It is possible some might wish to drive by car to a port of embarkation. Others may wish to be routed via West Indies ports. Individuals and groups planning to attend the Rio meetings should start at once to work on schedules.

For detailed information about the program of the 18th International Geographical Congress at Rio, and for registration forms, write to:

U. S. National Committee of the International Geographical Union,
National Research Council,
2101 Constitution Avenue,
Washington 25, D.C.

In the January issue of the JOURNAL, any further information regarding tours and plans will be announced.

The Fifth National Convention of the United States National Commission for UNESCO convened November 3-5 in Cincinnati. The National Council of Geography Teachers was invited to send two delegates. Our representatives were: Lyle R. Fletcher of Bowling Green State University (Ohio), and Norman Carls of the University of Pittsburgh. Some one-thousand invited delegates were in attendance. The theme was: "UNESCO—The First Nine Years—An American Appraisal and Forecast."

To all members of the N.C.G.T., the present administration appreciates your active participation and continuing interest in the improvement of geographic education.

To the incoming new administration we give our support and confidence. Their leadership will be successful to the extent that we members take part productively in the long range plans being developed.

With greetings for the holidays ahead and all good wishes for the coming new year.

M. MELVINA SVEC, *President*

MEETINGS AND BULLETINS

Congratulations to the Geography Club of Manual High School of Peoria, Illinois. It recently published a sixteen-page anniversary number of its "Manual Hi-School Geographer." This was No. 1 of Volume V. Here is a real live-wire Geography Club doing some splendid work under the sponsorship of Miss Wilson. There should be many more clubs like this in our high schools.

The October number of "The Bulletin of the Virginia Geographical Society" is excellent. It carries twenty-seven pages of very useful material prepared by a dozen authors. As a distinctive feature the inside of the front cover has a colored map of Alaska, and maps of Mexico, Central America and West Indies adorn the back cover.

The second Conference on Geography Teaching was held in July at Montana State College, Bozeman, Montana, under the able direction of Dr. Nicholas Helburn. Nine speakers presented a program that varied from current events—air age, effect of environment, and conservation—to problems of the geography teacher. We note that our secretary, Ina Cullom Robertson, gave three lectures during the Conference.

Teachers College, Plymouth, New Hampshire, served as host to the National Work Conference of the Conservation Education Association last August. This was a five-day conference.

M. Melvina Svec, President of the NCGT, spoke on "Geographical Horizons in the Social Studies" at the October meeting of the Virginia Educational Association.

The 30th Annual Meeting of the New England-St. Lawrence Valley Geographical Conference was held at Clark University in October. Three papers were presented during the forenoon. These papers dealt with industrial sites, trade patterns, and urban planning. Two field trips were conducted in the afternoon. Dr. S. Van Valkenburg is the new president.

The Nebraska Chapter of the National Council continues its splendid work. The Bulletin always presents fine practical material for the teachers of Nebraska. We note that the present Bulletin is Volume XXIV. Can you equal that in your state?

The Sixth Midwest Conservation Education Conference was held at Green Lake, Wisconsin in October. The sessions occupied three days. Ten speakers dealt with various phases of conservation, in addition to workshop discussions.

The Wisconsin Council of Geography Teachers issued its latest newsletter in October. It carries an announcement of the meeting to be held in Milwaukee and the geography offerings in the University and the colleges of the state.

The October, ten-page Newsletter of the New Jersey Council of Geography Teachers starts the second volume of this very helpful publication. It is issued at Trenton State Teachers College. Dr. John Wright of the American Geographical Society was the principal speaker at the November meeting.

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EDITORIAL NOTES AND NEWS

GEOGRAPHY ON THE MARCH

More people are studying geography in the high schools than ever before. This observation was reached following a survey made recently to determine the status of geography in the secondary schools. Not only do enrollment figures bear evidence of this, but teachers and principals returning the questionnaire used in making the survey stated that interest in geography is mounting.

According to the survey, geography is taught in all grades of the high school, but occurs most frequently in the tenth grade. A wide variety of courses is taught, but global geography appears to be taught most often followed by economic, human, regional, commercial, physical and local. Most schools appear to offer only one course in geography but may have more than one section.

Most schools participating in the survey reported offering and teaching geography as a separate subject.

About two-fifths of the schools offer geography as an elective, while more than a third teach it as a required course in the curriculum.

Some schools offer geography as part of a social studies centered core in the curriculum. This is particularly true in urban centered schools where economic geography tends to receive more emphasis than any other kind.

Although increased interest in geography is evident, many problems remain to be solved before the majority of high school students have one or more courses available to them. Chief among these problems are: more clearly defined statement of geography's place in the curriculum, a clearer concept of the phase or phases of geography to be taught, a need for better understanding of the nature and value of geography in people's lives, more general acceptance of geography for college entrance credit, better qualified teachers, more sympathetic administrators, and better textbooks.

Stimulating classroom aids are available for teachers in grades 1-6 in the form of attractive, large-sized, plastic puzzle maps of North, Central and South America and the United States. The pieces of each puzzle represent either a country or a state. Slots are provided for detachable tabs showing capitals, population, area and outstanding products or industries. After removing all states or countries from the frame and shuffling, contests can be held testing the ability of students to relocate each piece and affix tabs in their proper slots. Also, each piece of a puzzle can be used as a stencil in making outline maps. These puzzles are manufactured by Hassenfeld Bros., Inc., Pawtucket, Rhode Island.

"The good teacher requires:

Physical vitality. I will try to keep my body well and strong.

Mental vigor. I will study daily to keep my mind active and alert.

Moral discrimination. I will seek to know the right and to live by it.

Wholesome personality. I will cultivate in myself good-will, friendliness, poise, upright bearing, and careful speech.

Helpfulness. I will learn the art of helping others by doing helpful things daily in school and home.

Knowledge. I will fill my mind with worthy thoughts by observing the beautiful world around me, by reading the best books, and by association with the best companions.

Leadership. I will make my influence count on the side of right, avoiding habits that weaken and destroy.

These things will I do now that I may be worthy of the high office of teachers.—The FTA Pledge, 1936."—NEA NEWS, December, 1954, p. 3.

College Texts

Smith, Phillips, Smith

INDUSTRIAL AND COMMERCIAL GEOGRAPHY

Fourth Edition 1955

Wheeler, Kostbade, Thoman

REGIONAL GEOGRAPHY OF THE WORLD

1955

Durand

WORLD GEOGRAPHY

An Introduction

1954

Gottmann

A GEOGRAPHY OF EUROPE, Revised

1954

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GEOGRAPHICAL MATERIALS RECEIVED

William A. Smith. **Ancient Education.** Philosophical Library, Inc., New York, 1955. xii and 309 pages with bibliography and index. $3.75.

The cultural and educational development of the Mesopotamians, the Egyptians, the Indians, the Chinese, the Greeks, the Romans and the Hebrews.

Educators Guide to Free Films, Fifteenth Annual Edition, 1955. Educators Progress Service, Randolph, Wisconsin, 1955. x and 591 pages. $6.00.

A complete, up-to-date listing of free educational, informational and entertainment films.

David Lindsey. **Ohio's Western Reserve—The Story of Its Place Names.** Press of Western Reserve University, Cleveland, Ohio, 1955. vii and 111 pages with illustrations and index. $2.75.

Answers to the question, "How did this community get its name?" in the Western Reserve, twelve counties of northeastern Ohio.

Germán Arciniegas. **Amerigo and the New World.** Alfred A. Knopf, New York, 1955. xvi and 323 pages with illustrations, bibliography and index. $5.00.

A full-length biography of Amerigo Vespucci translated from Spanish by Harriet de Onis.

Ida Leeson. **A Bibliography of Bibliographies of the South Pacific.** Oxford University Press, New York, 1955. x and 61 pages. $1.95.

A listing of 376 publications under the headings of General Bibliographies, Bibliographies of Particular Areas, Anglo-French Condominium-New Hebrides, Kingdom of Tonga, and Subject Bibliographies.

David H. Miller. **Snow Cover and Climate in the Sierra Nevada California.** University of California Press, Berkeley, 1955. v and 218 pages with illustrations, tables, bibliography and index. $3.00 paper cover.

This investigation is a doctoral thesis and explains climatic conditions.

Elementary Teachers Guide to Free Curriculum Materials, Twelfth Annual Edition, 1955. Educators Progress Service, Randolph, Wisconsin. xiv and 315 pages. $5.50.

A complete, up-to-date listing of free educational aids.

American Heritage, Vol. VI, No. 5, August, 1955. American Heritage Publishing Co., New York, 112 pages with illustrations. $12.00 for one year—6 book-issues.

The Magazine of History in book form.

Georges S. Houot and Pierre Henri Willm. 2000 **Fathoms Down.** E. P. Dutton & Co. Inc., New York, 1955. 192 pages with illustrations. $4.00.

Translated from the French by Michael Bullock, an account of experiences by the authors who took the French Bathyscaphe F.N.R.S. 3 down to 13,287 feet off the coast of Africa at Dakar.

T. Bedford Franklin. **Climates in Miniature.** Philosophical Library, New York, 1955. 137 pages with illustrations and index. $3.75.

The author explains experiments carried out with simple and cheap apparatus in discovering how beasts, birds, plants and even humans react to the local climates and environments in which they live.

Jessie R. Kistler. **Meet Your Neighbor: Stories from Alaska to Argentina.** Vantage Press, Inc., New York, 1954. 184 pages with illustrations. $3.00.

Travel, adventure, history and legend go into this book to help elementary children get acquainted with their neighbors.

Donald John Munro. **Commodore John Paul Jones, U. S. Navy.** The William-Frederick Press, New York, 1954. 108 pages. $3.00.

A biography written by a professional naval officer for high school level and above.

Walter W. Ristow and Clara E. LeGear. **A Guide to Historical Cartography.** Library of Congress, Washington, D.C., 1954. 18 pages with index. 35 cents.

A selected, annotated list of references on the history of map and map making.

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ATLAS OF THE WORLD'S RESOURCES: THE MINERAL RESOURCES OF THE WORLD, Vol. II

by WILLIAM VAN ROYEN, OLIVER BOWLES of the University of Maryland, and ELMER W. PEHRSON, U.S. Dept. of Interior (Published for the University of Maryland)

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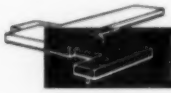

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